

CHAPTER X:

TRANSPORTATION

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INTRODUCTION

Smithfield is located at the crossroads of two major highways--US Route 258 (West Main Street) and VA State Route 10 (Benns Church Boulevard)--on the periphery of the rapidly suburbanizing Hampton Roads region. The Town has experienced significant traffic growth since the adoption of the 1992 Comprehensive Plan. Within the corporate limits, this expanded traffic has been attributable to the redevelopment of the downtown area, while new development on the outskirts of the Town has stimulated new suburban traffic patterns. During recent years, regional development has exacerbated traffic carrying capacities within the Town due to the extensive development which has occurred to the southeast of Smithfield and throughout the Hampton Roads area.

When the Town was incorporated in 1752, Smithfield was envisioned to be a 72-lot "new towne" by its founder Arthur Smith. The early street system, confined by its modest "grid" and the constraints of the Pagan River, was characterized by what is referred to today as a "fixed capacity" system. While growth within this former river port town has far exceeded anything which Mr. Smith originally envisioned, this street "grid" remains essentially in place today. Therein lies the problem for today's transportation planners.

The major factors which are expected to influence the local street network in the future are emerging tourism, continued suburban residential growth and expansion of regional employment. With the development of surrounding residential areas and regional industry, future traffic patterns will create increasing burdens on the Town's internal transportation links, particularly those providing for through traffic movements within Smithfield's limited capacity street network. While the Town possesses reasonably good "bypass" traffic carrying capacity, the accommodation of "in-town" vehicular movements is limited by the historically constrained rights-of-way and few opportunities for new alignments. Thus, the challenge to the 1999 Comprehensive Plan Update is not so much that of addressing internally generated traffic volumes, but, rather, that of developing creative responses to best serve the rapidly accelerating regional traffic demands which, if unaddressed, must be accommodated by a Town system of limited capacity and even more limited expansion potential.

This chapter is intended to focus on both the near-term and long-range street improvements needed to promote adequate and safe levels of traffic movements in Smithfield. The study effort has examined (1) existing transportation deficiencies, (2) local and regional demographic transportation growth, and (3) traffic impacts which may be generated by the Future Land Use Plan. In some instances, transportation needs may be revealed for which there exists no readily apparent and feasible, near-term solution. However, it is the aim of this plan to prioritize the most significant transportation deficits in Smithfield and to identify options which the Town can further evaluate and pursue in the coming years.

The findings herein are considered to be conceptual in nature and are intended to set the foundation for subsequent detailed transportation evaluations and traffic studies by the Virginia Department of Transportation and the Town.

This chapter contains the following sections which examine the existing road and traffic conditions, recommended transportation improvements, and implementation opportunities:

- **Influences on Town Transportation Planning**
- **Existing Traffic Impacts**
- **Transportation System Hierarchies**
- **Entrance Corridors**
- **Transportation Goals and Objectives**
- **Supporting Policies and Initiatives**
- **Transportation Improvements Plan**
- **Transportation Project Recommendations**
- **HRPDC 2015 Regional Transportation Plan**
- **Implementation and Financing**
- **Official Map for Transportation**
- **Traffic Impact Assessments for New Development**
- **Pedestrian Facilities and Sidewalks**
- **Bikeways**

INFLUENCES ON TOWN TRANSPORTATION PLANNING

The unique confluence of Smithfield's regional setting as a (1) major industrial center, (2) historic village, and (3) retail marketplace is recognized by the Comprehensive Plan as a strong asset to the community. The 1999 Plan, by nature of its recommended future land uses, makes a strong commitment to the continued service and expansion of these assets. With this background, the following general historic conditions, trends and observations serve to organize the framework for the recommendations which are to be incorporated into the Transportation Plan:

- *The backbone of Smithfield's historic street system rests on a "new town" street grid conceived in 1752 which was originally designed to serve transportation movements created by an eighteenth century river port community.*
- *The historic development of travelways outside of the historic Smithfield "new town" followed agrarian road layouts generally corresponding with the "lay of the land," avoiding the river's edge, marshes and lowlands and running radially from the Town's center.*
- *Recent infill development within Smithfield as well as the rural-to-residential development transition of outlying land around its edges have created geometric and*

functional constraints for the adequate accommodation of the evolving urban traffic influences within that grid.

- During the first half of the twentieth century, the development of outlying country roads focused, for the most part, on modest upgrades of agrarian alignments within existing prescriptive rights-of-way, leaving conditions of substandard horizontal and vertical curvature which do not conform to contemporary road norms.*
- The expansion of land use activities by the Smithfield Foods operations have created demands on the local transportation system which tax the carrying capacity of the original Smithfield local street infrastructure.*
- The expansion of the suburban ring around the Hampton Roads area has gradually created regional demographic growth and traffic influences for which Smithfield's local street system was not designed.*
- The surrounding Isle of Wight County's rapid suburbanization has imposed traffic demand pressures on the capacity and function of town roads. These streets are now called upon to meet expanded intra-regional demands while still serving the primary function of accommodating the needs of relatively low-density development along their contiguous rights-of-way.*
- Over the past fifteen years, the completion of the Route 10 Bypass arterial, direct industrial access via Berry Hill Road to Smithfield Foods, and other arterial improvements have created greatly enhanced regional "bypass" traffic capacity on Smithfield's westerly edge.*
- Pedestrian and bicycle demands are creating ever-increasing competition for the same paved surfaces which, in past generations, have predominantly accommodated the automobile. Town streets face the dual pressures of functionally incorporating both vehicular and bike needs, even in cases where insufficient pavement capacity and right-of-way is available.*
- Due to its geographic size and density, Smithfield does not have the critical mass to make public transportation economically viable.*

EXISTING TRAFFIC IMPACTS

Average daily 24-hour traffic counts were conducted most recently for the major streets and roadways within the Town by the Virginia Department of Transportation in 1994. These counts provide the most current estimate of traffic volumes and serve as a basis for future transportation studies and

recommendations. For each street and roadway included in the VDOT traffic analysis study, counts were developed for the total number of vehicles which utilized the roadway traveling in both directions during a 24-hour period based on ADT (Average Daily Traffic). The table on the following page provides a summary of the Town streets with the highest ADT volumes.

The subject information for selected roads and streets has been arranged in ascending order with the roadways impacted by the highest ADT at the top of the page. The 24-hour Traffic Volumes indicate that the highest volumes of traffic are moving through the Town are on Route 10 between the Isle of Wight county line and North Church Street, yielding over 21,000 vehicles per day. Historic county analysis shows that the Town's minor arterial streets are handling dramatically higher volumes of traffic than they were a decade or even five years ago. South Church Street and North Church Street have each witnessed an increase of nearly forty percent in daily vehicle trips since 1985 according to VDOT traffic counts. West Main Street has experienced an increase of nearly 35% during this same time period. At the same time, Route 258 west of the Bypass/West Main Street interchange has actually experienced a decrease in daily traffic demand.

Future traffic volume projections are not included in this study as they require extensive traffic inventorying, analysis and inter-jurisdictional coordination that extend well beyond the scope of this Comprehensive Plan. Updated projections are being developed, however, by the Hampton Roads Regional Planning District Commission (HRPDC) for many of the major thoroughfares in the region, of which several of the road segments listed above will be included. Initial projections developed by the HRPDC indicate that increased growth pressures in the surrounding region will drive significant increases in daily traffic demand along Smithfield's major arterial roadways, particularly along Route 10, where daily traffic demand is projected to exceed 30,000 vehicle trips by the year 2015. The HRPDC will use the MINUTP regional travel demand model to update and expand the scope of the 2015 projections included in the 1995 Hampton Roads 2015 Regional Transportation Plan for the region's major corridors. MINUTP, which is a specially designed software program that enables transportation planners to estimate travel demand (by hour, up to twenty-four hours) for subject roadways, will incorporate socioeconomic projections and planned roadway improvements in the region into the calculation of projected future travel demands. These projections will be included in a summary report that will be made available by the HRPDC for future reference.

Table X-1
SMITHFIELD 24-HOUR TRAFFIC VOLUMES*

<u>Town Street</u>	<u>Traffic County Road Segment</u>	<u>24-Hour Volume</u>	
1	Route 10	Isle of Wight C.L. & Church Street	21,077
2	Main Street	Middle Street & Great Springs Road	13,108
3	Church Street	Cedar Street & Cypress Creek Bridge	12,920
4	Route 10 Bypass	South Church Street & Main Street	12,633
5	South Church Street	Talbot & Jordan Drives	11,970
6	South Church Street	Heptinstall Ave. & Battery Park Road	11,155
7	Main Street	Route 10 Bypass & Grace Street	10,155
8	Church Street	Thomas Street & Commerce Street	9,413
9	Route 10 Bypass	Main Street & Cary Street	8,486
10	Main Street	Institute Street & Mason Street	6,539
11	Battery Park Road	South Church Street & Isle of Wight C.L.	6,238
12	N. Church Street	Berry Hill Road & Isle of Wight C.L.	4,801
13	Berry Hill Road	N. Church Street & Pinewood Drive	4,218
14	Grace Street	Institute Street & Mason Street	3,949
15	Jordan Drive	Church Street & Lumar Road	2,760
16	Cedar Street	Mason Street & South Church Street	2,445
17	Moonefield Drive	Lumar Road and Barcroft Drive	2,256
18	Lumar Road	Jordan Drive & Edgewood Drive	2,208
19	Cary Street	Grace Street & Route 10 Bypass	1,776
20	Underwood Street	Cedar Street & Main Street	1,650

*Counts recorded by the Virginia Department of Transportation (VDOT) in 1994.

TRANSPORTATION SYSTEM HIERARCHIES

This Plan recognizes four general levels of road classifications found in the Town, as well as the distinctive characteristics of travel patterns and capacity requirements related to each. These include:

- A. Major arterials and thoroughfares;**
- B. Minor arterial streets;**
- C. Local collectors and major residential streets, and**
- D. Minor residential streets.**

While there are other methods of defining and categorizing transportation systems, this four-tiered classification scheme provides a readily understandable organization of road hierarchies for the 1999 Comprehensive Plan.

A. Major Arterials and Thoroughfares

The major arterial is a multi-lane, high capacity facility with either partial or complete control of access and medians separating opposing traffic streams. The Route 10 Bypass represents Smithfield's only highway which meets the definition and intended function of this roadway classification. The principal objective of the major arterial is devoted purely to traffic movement, with these facilities providing little or no service to directly abutting land.

In essence, the intent of the major arterial and thoroughfare is to bring widespread geographical areas closer together in terms of travel time as well as to divert through trips from other principal thoroughfares which provide direct service to major traffic generators. Over time, development pressures will likely be exerted on Route 10 which could compromise its major arterial function. This should be avoided. At present, Route 10 has functional and geometrical limitations at its intersection with West Main Street -- a major "gateway" entrance into the Town -- which should be improved. In its six-year plan for the region, VDOT has included a project that would alter the course of the bypass around the southwestern edge of Town in the hopes of decreasing the traffic impact at this important gateway. The planned alignment would extend from the new Cypress Creek interchange along a path to the west of the present alignment, connecting with Route 258 well west of the Town boundary (near Benns Church). This planned alignment would complete the "loop" of the bypass entirely around the southern half of the Town.

B. Minor Arterial Streets

The second level in the transportation hierarchy--minor arterial streets--focuses on systems to route traffic to and from major arterials or thoroughfares. The minor arterial is intended to handle trips between major traffic generators and to accommodate internal traffic movements (collection and distribution) within a defined urban area. Although their primary function is to move traffic in a relatively unimpeded fashion, minor arterial streets also give access to immediately adjacent lands to the extent compatible with the requirements of through urban traffic movements. Business Route 10, Route 258 and South Church Street are representative of Town streets which provide an minor arterial function.

While there exist arterial-level demands for improved traffic movements in and around Smithfield, these movements cannot be addressed with a single, direct "bold stroke" improvement because of the limiting

conditions of the built and natural environment, including: (a) insufficient passages within the Smithfield grid system which would allow for additional direct minor arterial connections through the Town and (b) few, if any opportunities to achieve “through road” alignments within the recently annexed properties. Fortunately, at present, the critical east/west movements do not have volumes which dictate a new in-town arterial alignment corresponding to a direct, through-town “desire line.” However, increased suburban development coupled with the downtown’s expanding popularity for regional tourism could conceivably create minor arterial demands which cannot be adequately handled by the existing collector streets.

C. Local Collectors and Major Residential Streets

Local collector streets in Smithfield serve to distribute traffic between minor arterial streets and activity centers. While their primary function is to collect relatively high volumes of local residential traffic, the local collector (or major residential street) can normally sustain the demands of minor retail, office, and tourism generators along its alignment. Collector streets are traditionally two-lane undivided sections (often with turning lanes), with the relatively unrestricted spacing and configuration of access entrances.

New collector roads are normally constructed by private developers in conjunction with land development activities and are governed by Town subdivision ordinances, transportation design standards, and site plan design criteria. The nominal capacity and intended function of residential collectors is realized when system traffic loadings are in the range of 1000 to 4000 vehicle trips per day. Smithfield relies on a disproportionate number of its collector streets to provide minor arterial-level functions between origin/destination points for which no arterials exist. Based on VDOT traffic counts, it is obvious that these nominal collector street capacities are far exceeded in many locations.

Within established communities which have evolved from a combination of village and agricultural influences such as Smithfield, collector streets can be segregated by generalized facility age (the “old” and the “new”) and locational sub-categories (the “town-scaled” and the “country-scaled”). Smithfield’s local road network amply illustrates the physical distinction between these sub-categories as well as the design constraints associated with the upgrading of each:

- ***Old collector alignments***--as evidenced by Cary Street, Battery Park Road, and Moonefield Drive have the following typical attributes: Older, town-scaled collector alignments usually suffer from an “identity” crisis in that they have been called upon to serve traffic functions which are diverse and competing. Over the years, these streets “matured” ostensibly into a minor arterial function carrying too much traffic and serving too varied demands on undersized facilities. Aging collectors (a) have relatively narrow pavements and rights-of-way, (b) are improperly drained and landscaped, and (c) carry more traffic than they should. Representative “old” collector alignments can be either town-scaled or country-scaled, depending upon the nature of the road section design, including pavement width, crown height and the presence of curb and/or gutter.

- ***New collector alignments***--as evidenced by John Rolfe Drive and Canteberry Lane, typically (a) have been constructed in conjunction with recent (post-1960's) residential subdivision development, (b) usually include sidewalks, curbing and adequate drainage facilities within appropriately sized road sections (c) have properly engineered vertical and horizontal curvature, and (d) carry reasonable capacities due to their context within a "planned" subdivision. Roads such as Smithfield Boulevard and Jericho Road present a hybrid collector, possessing both rural and suburban transportation design characteristics. New residential collectors are not usually impacted by adverse land use policy and, in general, adequately serve their intended function for collecting and distributing large volumes of residential traffic.

D. Minor Residential Streets

The Smithfield transportation system hierarchy also provides for a fourth category of street, the minor residential street. These facilities are often further categorized into sub-collectors, lanes, and places (or cul-de-sacs). A residential "sub-collector" provides access to places and lanes while directing traffic to community activity centers or a higher classification of street. It may be a loop street--such as Jordan Drive, Riverside Drive, Talbot Drive, Magruder Drive and Washington Street - which link into larger, connector streets.

A "lane" and "cul de sac" -- as illustrated by Goose Hill Way or Ledford Lane -- represent two subordinate levels of relatively short residential streets having the primary purpose of conducting traffic to and from residences to other streets within a residential subdivision. Usually, in this level of minor street, there is no through-traffic between two streets of a higher classification. While a sub-collector may experience traffic levels up to 1000 vehicles per day, a place, lane or cul-de-sac is rarely intended to serve more than 100 to 350 vehicles per day.

ENTRANCE CORRIDORS

A major emphasis of the development of the Comprehensive Plan was the recognition of the unique character of the Town's entry corridors and arterial roads which serve as the gateways to Smithfield's historic districts or points of tourism or cultural destinations. The Planning Commission identified five such entrance corridors:

1. *Route 258 from the west;*
2. *State Route 10 Bypass from the north;*
3. *State Route 10 Business from the north;*
4. *State Route 10/U.S. Route 258 from the south; and*
5. *Battery Park Road (Route 669) from the east.*

The intersection of Route 258 and Route 10 Bypass serves as the major gateway into Town from the west, while the South Church Street/Route 10 Bypass/Route 258 intersection forms the primary gateway from the east. It is believed that the Battery Park Road/Nike Park Road intersection will emerge as another primary gateway in the near planning term as future development east of Town will increase vehicle trip demand along this arterial.

The Town plans to introduce protection and design control measures for these corridors and gateways in order to stimulate complementary new development which will be compatible with Smithfield's historic character and which will enhance the Town's attractiveness to tourists, visitors and its residents.

TRANSPORTATION GOALS AND OBJECTIVES

Traditionally, transportation planning for Smithfield has placed its strongest emphasis on its major thoroughfares and corridors. The goal of developing an efficient corridor system, consisting of major arterials designed to carry the majority of traffic, has been an essential element of planning for Smithfield over the past twenty years. For example, the added benefit of more efficient handling of traffic on the Route 10 Bypass has been that local streets have been freed from the objectionable aspects of heavy traffic. This has been especially important in view of the limited capacities of Smithfield's downtown streets and other minor collectors to serve multiple purposes.

In order to best anticipate movements of citizens, tourists and passers-through in and around Smithfield, the Plan's goals must recognize that attention be given to more than just localized traffic generation and congestion concerns. The reciprocal relationship between transportation and land use planning underlies a set of ever-changing traffic characteristics which must take both local and regional impacts into account. In establishing transportation goals for the Comprehensive Plan, the "vision" was to seek better ways to guide the location, character and capacity of transportation facilities so as to be compatible and consistent with both the Plan's land use recommendations and the greater regional influences. While most of the major arterial and corridor improvements have been planned and constructed over the past two decades, the current planning process more closely examines the potential for upgrading segments

of the secondary street system as well as opportunities for new collector streets to relieve continued traffic problems which have regional roots.

Smithfield's transportation planning for the new millennium should encourage optimal community development while allowing for vehicular and pedestrian movements in a safe and efficient manner. The future transportation network should better accommodate the multi-focused pattern of employment, shopping and tourist facilities. At the same time, new transportation improvements should not be implemented which produce detrimental impacts on Smithfield's stable residential and downtown business areas. Each street improvement should be carefully measured to insure compatibility with the scale and quality of the "Vision for Smithfield."

Towards these ends, the following are the major and minor goals which have been adopted to guide the transportation planning process:

Major Transportation Goal:

The location, character and capacity of Smithfield's transportation facilities (including thoroughfares, local streets and parking) should be compatible with the Future Land Use Plan. Planning for future road and street improvements and alignments should be compatible with emerging land uses and should provide adequate capacities to serve future growth.

Major Transportation Planning Objectives:

- A. Implement street improvements which are of the appropriate scale and capacity to serve long-range traffic demands, while respecting the environment and scale of the surrounding neighborhood.
- B. Maintain the integrity of Downtown Smithfield by implementing traffic calming strategies, four-way stops at unsafe locations, and other traffic safety measures to minimize the impact of traffic in the historic area.
- C. Increase parking capacity in the downtown area by providing for new and expanded public parking facilities. Undertake a study leading to a consolidated and comprehensive downtown parking plan which fulfills economic development objectives for the central business area.
- D. Discourage the development of private road systems within single-family residential subdivisions.

- E. Establish and reserve new public street alignments and adequate rights of way in future development areas, and establish strategies for transportation implementation and phasing in conjunction with development of properties.
- F. Examine the existing sidewalk system in established neighborhoods, and study the feasibility of adding sidewalks to these areas.
- G. Study the possibility of linking a bike trail in Smithfield to the regional bicycle trail system.
- H. Incorporate expanded standards into a Design and Construction Manual for street, bikeway, pedestrian, and related drainage and infrastructure improvements.

SUPPORTING POLICIES AND INITIATIVES

Arising from the major transportation goals and objectives, there emerge a number of general policies and supporting initiatives which should guide in establishing priorities for future Town transportation improvements. These include the following:

- **Compatibility with Comprehensive Plan:** To ensure adequate traffic carrying capacities, future transportation improvements should be commensurate with the anticipated development activities proposed in the Comprehensive Plan. The Future Land Use Plan should establish properly planned access points to undeveloped and redeveloping properties.
- **Access to Annexed Areas:** To best access the newly annexed areas, proposed future transportation improvements should embrace appropriately scaled collector roads within the annexation areas programmed for development and should not isolate (or "land lock") usable pockets of land. The reservation of proper access points to existing and proposed transportation facilities should be required via the zoning and subdivision process.
- **Emphasis on Existing System:** Due to limited rights-of-way and opportunities for new alignments, maximum utilization should be made of existing transportation facilities and the opportunities for the improvements thereof.
- **Sensitivity to Downtown:** To ensure an appropriate scale and a sense of place within the downtown, transportation improvements should be compatible with the preservation and revitalization objectives developed by the Town for the downtown area.

- **Coordination with VDOT and HRPDC:** To better coordinate with VDOT and regional transportation planning processes, the Town should take the lead in promoting contemporary traffic engineering standards and techniques for existing and new improvements, including the innovative street design criteria, channelization of intersections, inclusion of traffic calming measures and integration of pedestrian and bike facilities.
- **Bike and Pedestrian Elements:** To enhance the Town's viability as an inviting center for tourism and to better integrate its existing and planned neighborhoods, the Town should develop a master planned bicycle and pedestrian system in order to properly integrate these facilities into the existing Transportation Plan.
- **Gateway and Corridor Planning:** To create a more attractive "gateway" and "corridor" image for the Town, proposed transportation improvements and new alignments should respect the Town's urban design and corridor enhancement objectives, including the provision of street landscaping, lighting, highway buffers and bicycle and pedestrian facilities.
- **Compatibility with Environment:** Recognizing the vulnerability of the Town's sensitive water resources and natural areas, transportation facilities should avoid, where possible, these areas as well as the disruption of ecological areas which would have a negative impact on the Town's environment.
- **Subdivision and Site Plan Review:** To ensure adequate street planning and design by private development, the Town should carefully evaluate all future residential development proposals in order to provide for appropriate levels of inter-community traffic circulation between residential developments, including the proper locations, alignments and rights-of-way for future roads, and integration of streets and bicycle and pedestrian pathways to ensure that transportation improvements can be implemented with the least public cost.
- **Traffic Impact Analysis:** To ensure compatibility with the recommendations of the transportation plan, private development proposals should include traffic impact statements which fully identify the nature of future traffic conditions and analyze the degree of traffic generated by any given proposal.
- **Maintenance and Private Subdivision Streets:** In order to better safeguard Town residents and minimize private maintenance responsibility for single family residential areas, subdivision standards should prohibit the development of private road systems in detached and duplex residential developments.

- **Economics:** To provide equity in the cost of transportation improvements, the transportation plan should be a realistic implementation tool in that it recognizes the need for financial responsibility for improvements as a partnership function--inclusive of the (a) State, (b) Town, (c) business and industry and (d) the end-users of programmed new development.

TRANSPORTATION IMPROVEMENTS PLAN

The Comprehensive Plan seeks to identify problems and provide for options and opportunities to satisfy the identified needs. This transportation plan offers a series of individual projects for upgrades and new facilities which respond to existing transportation deficiencies as well as traffic demands generated by (a) the Future Land Use Plan, (b) regional traffic growth which will impact the Smithfield road network and (c) existing development within the Town.

An initial task in this process was the evaluation of the Town's existing transportation system. This analysis was conducted by examining the transportation characteristics of each planning area and entrance corridor. Where apparent conflicts and deficiencies were observed, these were categorized and reviewed based on their "transportation fundamentals," including preliminary considerations such as existing roadway geometry, pavement characteristics, current traffic volumes, capacity characteristics as well as other deficiencies related to their physical setting and functional performance expectations.

Based on this analysis, it is apparent that many of the Town's streets and intersections fail to meet contemporary urban design criteria. Some of these roads could not be reconstructed today within their existing right of way and geometric configurations to satisfactorily meet either VDOT or typical urban design requirements. Inasmuch as a practical design "solution" may be physically or economically infeasible, it is important for the reader of this plan to maintain a "balanced view" of the transportation process which takes one from "analysis" to "recommendations" to "implementation priorities."

For the purpose of this plan, several specific opportunity areas were identified within the Town. Each have been identified according to the major existing constraints or transportation problems impacting the Town's transportation network and adjacent land uses and include recommendations for specific future improvements. Prior to implementation, the study areas will require more detailed traffic and transportation analysis before the Town Council establishes its own priorities and budgets to determine what will eventually constitute a multi-year transportation improvements program. While this analysis reveals a local transportation system which has a seemingly broad range of shortcomings, the realization of the appropriate physical remedies to these deficiencies via the Capital Improvement Programming (CIP) process should not be viewed as either an overnight process or altogether politically feasible.

The following section summarizes the ten most significant areas of transportation concern which respond to the significant "problems and opportunities" identified during the comprehensive planning process. As listed below by location within the Town, each corresponding project for the identified "problem and opportunity" embraces a unique combination of transportation issues within the particular Planning Area or Entrance Corridor.

TRANSPORTATION PROJECT RECOMMENDATIONS

1. South Church Street

Location: South Church Street forms the major, central corridor within the Town. It bisects the Town running from Northwest to Southeast. Currently, South Church Street is a three lane road between Battery Park Road and the Cypress Creek bridge, where it then necks down to two lanes across the bridge.

Key Planning Issues and Needs:

ISSUE #1: The proliferation of commercial strip development along South Church Street has created a streetscape that is visually cluttered, poorly defined and uninviting to pedestrian traffic. Commercial development exists along much of the street between the Cypress Creek Bridge and the Route 10 Bypass, and many of the commercial establishments have direct access points to South Church Street. Little distinction is discernible between existing sidewalks, the street and in many instances, commercial parking lots along South Church Street as the street edge is non-existent in many areas. Vehicles entering and exiting from ill-defined driveways and parking lots create increased congestion and enhance the potential for traffic/pedestrian conflicts and accidents. Furthermore, overhead utility lines and commercial signage dominate the viewshed along the corridor, creating visual obstructions that can often distract visitors and increase traffic and pedestrian safety hazards in the area.

RECOMMENDATION: Limiting curb cuts, thereby minimizing entrance points into adjacent land uses, will improve traffic safety along South Church Street. Establishments along the South Church Street commercial corridor should share established, more clearly defined vehicular entryways. The Town should proactively work with VDOT to undertake a traffic improvements plan to address the consolidation of commercial entrances, to the extent feasible. Where curb cuts are necessary, they should be marked with a change in materials, color, texture or grade.

RECOMMENDATION:

Complete the planned widening of the street from Battery Park Road to the Route 10 Bypass to include an extension of the third turn lane, a bikeway on one side of the street and a sidewalk on the other side of the street. Care should be taken to ensure that the street edge is clearly defined by retaining the curb street where possible and minimizing curb cuts. The bikeway should be clearly marked with paint and/or with a change in paving material, color and texture, and the sidewalk should be delineated with a separate paving material.

RECOMMENDATION:

Place utilities underground along South Church Street or located behind buildings if undergrounding is not feasible.

ISSUE #2: Congestion is an issue all along South Church Street from the Cypress Creek Bridge to Battery Park Road as the street serves as a minor arterial supporting traffic from nearly every residence and commercial establishment east of Cypress Creek within the Town.

RECOMMENDATION: Transportation enhancements to John Rolfe Drive, Quarterfield Drive and Moonefield Drive will lessen the need for residents of the River Residential and John Rolfe Planning Areas or others traveling from Battery Park Road to travel along South Church Street to reach their destination. The Town should place these improvements high on its list of transportation-related priorities and commence coordination with VDOT to ensure their implementation.

ISSUE #3: Pavement condition is poor on South Church Street, particularly in the downtown area.

RECOMMENDATION: Undertake a feasibility study and preliminary cost analysis for the repaving of Church Street. Consider extending the brick paving found on West Main Street in the core of the downtown area along Church Street creating a more cohesive connection throughout the historic district. This feasibility study should also consider the possibility of undergrounding utility lines along the street as well as implementing potential stormwater management improvements targeting reoccurring street flooding and ponding in the adjacent residential yards.

ISSUE #4 Off-street and private parking for residents and customers along South Church Street between Cedar Street and the Cypress Creek Bridge is extremely limited and often difficult to access. As a result, cars are often parked on sidewalks thereby making pedestrian travel difficult and thru-traffic hazardous. Congestion and visual clutter along the corridor detracts from the beauty of the historic district.

RECOMMENDATION: Study the feasibility of reconfiguring the roadway in order to add an additional lane allowing for on-street parking on one side of the road only with ample room for a sidewalk on the opposite side of the street. Any improvements to the roadway shall preserve the existing street trees.

ISSUE # 5: VDOT currently includes improvements for South Church Street (similar to those outlined in the recommendations above) in its ten-year planning project list. Unfortunately, VDOT places a rather low priority on these improvements and, as a result, does not plan to implement said improvements until 2004. It is estimated that the project will take at least five years to complete.

RECOMMENDATION: The Town should work with VDOT to help State officials better understand the current situation along this street and the urgent need for providing the recommended improvements in the hopes that they will place a higher funding priority for the project and implement the recommended measures within the next two-to-three years.

2. Battery Park Road

Location: Battery Park Road bisects the eastern half of Smithfield between South Church Street and Nike Park Road. It provides primary access to all land uses within the Battery Park North and Battery Park South planning areas, as well as to the Gatling Pointe residential community in Isle of Wight County.

Key Planning Issues and Needs:

ISSUE #1: In recent years, an increasing number of Smithfield and Isle of Wight County business persons and residents have been traveling to and from the Peninsula via Battery Park Road, Nike Park Road, Titus Creek Road, Smith's Neck Road and Carrollton Boulevard and the James River Bridge. Battery Park Road forms the principal access point into and out of Smithfield along this "cut through" corridor. As such, the road serves two primary purposes: it serves local trips by area residents and it provides the integral access link for the shortest route for travelers moving between Smithfield and the James River Bridge to the east and the Peninsula beyond. Traffic bottlenecks are also common during peak demand periods at the Nike Park Road/Battery Park Road intersection. As new development in the County (i.e., the planned Eagle Harbor project) is completed in the coming decade, traffic demands will only increase along Nike Park Road and Battery Park Road, thereby exacerbating the existing problems.

In 1997, the Hampton Roads Planning District Commission (HRPDC) was requested by Isle of Wight County to analyze and make recommendations concerning future improvements needed to the secondary roads which lie between the Town of Smithfield and Carrollton Boulevard (U.S. Route 17). The focal point of the study was to determine the impact of "cut-through" traffic within the Battery Park Road-Carrollton Boulevard study area. The results of the study indicate that the roadways along the cut-through route have seen a considerable increase in traffic, between three and ten percent per year, over the past eleven years. Battery Park Road has experienced a significant annual increase in traffic demand over this time: 4.98% annually between 1985 and 1996 for the South Church Street to Nike Park Road span and over 9% annually along the

segment between the Nike Park Road intersection and Route 671 to the northeast. In gross vehicular demand terms, the segment of Battery Park Road between South Church Street and Nike Park Road handles the largest number of daily vehicle trips within the cut-through corridor (6528 per day in 1996).

The HRPDC developed an extensive level of service analysis for the corridor. Level of service (LOS) is a qualitative measure used in transportation planning and engineering to determine the collective factors of speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience and operating costs provided by a highway facility under a particular volume condition. The LOS analysis indicates that none of the roadway segments are presently operating at LOS D or worse during the peak periods. LOS D is considered by most transportation engineers and planners to be a dividing line between acceptable and unacceptable levels of service. Based upon HRPDC field investigations, approximately 40 percent of the traffic on the corridor is cut-through traffic traveling between Smithfield and the James River Bridge and the City of Suffolk. While Battery Park Road currently operates at an acceptable level of service (LOS C) during peak hours, as traffic along this road continues to increase at historical rates, the LOS of the road will continue to degrade as the region continues to grow. Thus, it is projected that the road will operate at a less than acceptable level of service (LOS D) by the year 2015. As the Smithfield area develops beyond 2015 and reaches full build-out, the HRPDC study concludes that Battery Park Road may absorb as many as 30,000 vehicle trips per day (nearly five times existing demand levels) and will need to be widened from its two existing lanes to incorporate at least two additional lanes. This widening would require an additional right-of-way, approximately 20 feet on both sides of the highway. The study also suggests that the Town and County plan ahead for roadway improvements along this study corridor by requiring new construction along the roads to respect a minimum 55-foot setback to allow for future roadway widening.

The vast majority of land fronting Battery Park Road in the Town is zoned GC, Community Conservation. The C-C district requires a 60-foot minimum front yard setback, so new development in the majority of the area will reserve the appropriate right-of-way needed for the future road widening. The only exceptions are two industrial parcels located on the northern side of Battery Park Road and the London Park tract located south of the road. The two industrial parcels currently are home to existing industrial uses that are considered stable and could realistically remain in operation on the sites to full build-out. Nevertheless, the parcels are zoned I-1, which requires a minimum 50-foot front yard setback, slightly less than the 55-foot setback recommended by the HRPDC for the corridor.

RECOMMENDATION: The Town should work with VDOT to determine the future Battery Park Road alignment and width of the future right-of-way of the recommended road widening. Once this alignment is determined, the Town should incorporate the right-of-way into the Town's planned Official Map. The Official Map will represent all legally established future or proposed public streets, alleys, walkways, waterways and public areas of the locality. Once this alignment is recognized officially, the Town should work to ensure that all established front yard setbacks are measured from the future road right-of-way line to ensure that new development will properly respect the planned highway improvement. As future development and redevelopment proposals for parcels fronting Battery Park Road are put before the Town Planning Commission and Council, the Town would then be able to use tools provided in the Subdivision Ordinance and Zoning Ordinance (specifically in the Site Plan requirements and in the capabilities afforded in the proffer section) to ensure that the future development of the Battery Park Road corridor will serve as an efficient and inviting entrance corridor into the Town. In the event that the owners of one or both of the two industrial parcels wish to redevelop their properties, the Town should work with redevelopers to reserve the necessary right-of-way for the recommended road widening. Thus, it is recommended that any future redevelopment of the parcels under the existing zoning district should comply with the slightly more restrictive minimum front yard setback of 55 feet.

It is also recommended that the Town develop a formal traffic study for the Battery Park Road/Nike Park Road intersection to determine if formal VDOT warrant requirements for a stop light are met. If so, petition VDOT to add a stop light at this intersection to increase its efficiency as an integral transportation gateway, as well as its safety for travelers and nearby residents.

ISSUE #2: Battery Park Road serves as a secondary entrance corridor into the Town and the route local residents take to destinations in the County and beyond to the Peninsula. Some land uses along Battery Park Road are considered less than desirable "first impressions" of Smithfield.

RECOMMENDATION: Design improvements implemented via a Corridor Overlay District would enhance the attractiveness of this major roadway. Such improvements may include screening between development and the roadway, setbacks, the construction of sidewalks and bikeways and increased signage restrictions. These improvements would enhance the appearance of this roadway and enable neighborhood residents to walk and/or bike safely from the residential neighborhoods to nearby commercial establishments along South Church Street, thereby creating a greater sense of community.

ISSUE #3: Traffic entering and exiting Battery Park Road into the numerous residential subdivisions (particularly at the John Rolfe Drive intersection) along the roadway creates traffic bottlenecks during high traffic demand periods and increases the potential for traffic accidents. Limited right-of-way along Battery Park Drive restricts the potential opportunity to improve the

roadway design, particularly at the John Rolfe Drive intersection where an electrical pole and ditching serve as physical constraints to increasing the right-of-way.

RECOMMENDATION: Work with residents along Battery Park Road, including the bank on the corner of John Rolfe Drive and Battery Park Road, to secure sufficient right-of-way to allow for turn lanes at the following busy intersections along Battery Park Road: John Rolfe Drive; Kendall Haven; Greenbrier Lane; and the future entrance to London Park. The Town should work with VDOT to develop a plan with regard to the necessary relocation of the existing power pole adjacent to the John Rolfe Drive intersection. The Town should also investigate opportunities to replace and/or augment the existing ditching along the road with a modern stormwater management design strategy for the area. The Town should negotiate a pro-rata share arrangement with the developers of subdivisions and property owners along this corridor in order to finance the right-of-way acquisition and turn lane improvements.

3. West Main Street

Location: West Main Street shapes historic, Downtown Smithfield. Functionally, it connects the Route 10 Bypass to the downtown area and the Pagan River.

Key Planning Issues and Needs:

ISSUE #1: There is a shortage of parking spaces in the core downtown area, particularly along Main Street, to serve the needs of shoppers and business.

RECOMMENDATION: Investigate the feasibility of constructing a public parking facility primarily targeted for use by those who work in downtown Smithfield.

RECOMMENDATION: Introduce and enforce time limits for on-street parking spaces which will work to reserve those spaces for downtown shoppers and visitors.

ISSUE #2: Vehicles commonly exceed safe driving speeds along West Main Street, particularly in light of the frequently high amounts of pedestrian traffic that impact the Downtown area.

RECOMMENDATION: The opportunity exists to introduce traffic calming devices and other measures to remedy this potentially hazardous condition. Examples may include the following: more aggressive enforcement of speed limits, new and improved signage, new stop lights and stop signs, and easily visible crosswalks.

4. Moonefield Drive

Location: Moonefield Drive is located in the River Residential Planning Area in the Northeastern portion of the Town.

Key Planning Issues and Needs:

ISSUE #1: This roadway is not built to contemporary urban design standards. Moonefield Drive is too narrow (20-22') to effectively handle present traffic demands according to local observations and resident concerns.

RECOMMENDATION: The Town should conduct a study examining the feasibility of widening Moonefield Drive to allow it to operate as a more effective collector street for adjacent residential neighborhoods. The Town will have to work closely with residents of the community to secure sufficient right-of-way to implement the street widening proposal.

ISSUE #2: Through traffic often travels at speeds which threaten the safety of neighborhood residents, especially children.

RECOMMENDATION: The opportunity exists to introduce traffic calming devices and measures to remedy this potentially hazardous condition. Examples may include the following: more aggressive enforcement of existing posted speed limits, improved speed limit signage and street lighting, the addition of new stop lights and stop signs if warranted and the introduction of more visible crosswalks.

ISSUE #3: Visual clutter along intersections makes turning movements difficult and dangerous.

RECOMMENDATION: Enforce signage control measures which regulate the size, placement and appearance of road front signs.

SPECIAL CONCERN: Sidewalks and bike trails are seen as being desirable improvements to the roadway which may have an impact on traffic calming and the reduction of thru-traffic speed.

RECOMMENDATION: Using the existing available right-of-way along Moonefield Drive, add sidewalks and bike paths on both sides of the road between John Rolfe Drive and Watson Drive as part of the recommended road improvements for this area. These sidewalks and bike paths will offer a direct non-vehicular connection between residents in the Planning Area and Beale Park.

5. Smithfield Boulevard

Location: Smithfield Boulevard is located in the southeastern portion of Town, just south of the Battery Park South Planning Area and north of the Waterford Oaks subdivision.

Key Planning Issues and Needs:

ISSUE #1: Smithfield Boulevard serves as a significant roadway connecting residential development with the South Church Street/Route 10 commercial corridor.

RECOMMENDATION: Enhancements to Smithfield Boulevard, such as the development of sidewalks and bikepaths and the planting of street trees, would enhance the appearance of this roadway and enable neighborhood residents to walk safely from the residential neighborhoods to nearby commercial establishments along South Church Street, thereby creating a greater sense of community. The road has the necessary right-of-way capacity to support these improvements as its existing pavement covers only approximately twenty feet within the 60' right-of-way.

6. Quarterfield Drive

Location: Quarterfield Drive is an unpaved road connecting South Church Street and John Rolfe Drive in the John Rolfe Planning Area.

Key Planning Issues and Needs:

ISSUE #1: One viable option is to make the Quarterfield Drive/South Church Street intersection a Right-In/Right-Out only intersection. Such a design change would help to alleviate the existing thru-traffic pressure impacting John Rolfe Drive and Battery Park Road.

RECOMMENDATION: Town Staff should meet with VDOT to determine the feasibility and expense of such a project, as well as its likelihood of being included in the near planning term as a State funded project.

7. Great Spring Road

Location: Great Spring Road forms the southwestern boundary of the Town in the southern annexation area. Functionally, it connects Route 258 and points southward in Isle of Wight County.

Key Planning Issues and Needs:

ISSUE #1: Great Spring Drive is limited by a severely narrow right-of-way and pavement width (approximately 16'). It is too narrow to support both a school bus or an emergency services vehicle and any other vehicle traveling in opposite directions. Even two automobiles passing must use great caution in order to safely avoid one another. The road's extremely high crown further complicates travel along this important connector road between Route 258 and the Cypress Creek community and points southward.

RECOMMENDATION: Work with residents along Great Spring Road to secure sufficient right-of-way to allow for street widening (to 24') and the necessary pavement overlay and drainage improvements.

8. Jericho Road

Location: Jericho Road connects the downtown area extending along West Main Street to South Church Street and the Pagan River from the south of Town, looping through the Jericho Planning Area and running adjacent to the Route 10 Bypass.

Key Planning Issues and Needs:

ISSUE #1: Jericho Road has the potential to provide a link between the Downtown area, Windsor Castle and the newly developed Jericho Estates residential neighborhood. Currently, the entrance to Jericho Road from South Church Street is poorly marked and the connection to Windsor Castle and points beyond are effectively hidden. This intersection has limited capacity in terms of right-of-way on Jericho Road and sight distance along South Church Street due to the presence of two historic residences located on each side of the intersection and the proliferation of mature street trees and on street parking along this section of the street.

RECOMMENDATION: Jericho Road in the Downtown area and adjacent to Windsor Castle is an important, historic road, and as such, maintaining its character is an important consideration in the 1999 Comprehensive Plan. The road is designed as a rural, historic lane, and the Town would like to preserve it in its present state. Improvements to the northern entrance of Jericho Road at South Church Street should be implemented to increase visibility and utilization of this connector by tourists wishing to see the Windsor Castle area with its view to the Pagan River. These improvements should focus on improving pedestrian linkages as opposed to promoting increased vehicular traffic as Jericho Road does not have the capacity to support increases in vehicular traffic demand nor future widening improvements. Recommended improvements to the intersection include providing adequate lighting to avoid pedestrian/vehicular conflict, incorporate improvements into the planned addition of a sidewalk along the south side of South Church Street and establish a distinction between the sidewalk and the street by retaining the curb strip and

incorporating a brick paver for the sidewalk consistent with the historic paving reflected on West Main Street.

9. Route 10 (Business)

Location: Route 10 (Business) is the major entrance corridor into Smithfield from the north. It provides primary access to the meat processing plants in the Smithfield Industrial Planning Area.

Key Planning Issues and Needs:

ISSUE #1: Traffic congestion at the Smithfield Foods plant is a major point of concern among Town residents and Smithfield Foods employees. Many pedestrians converge at a single destination during specific times as employees change shifts and typically cross Route 10 Business from the parking lot to the manufacturing facilities in large groups.

RECOMMENDATION: Promote the Route 10 Bypass as the primary entrance into Smithfield while encouraging all thru-traffic to avoid Route 10 Business if possible. This strategy would effectively limit the Route 10 business route to trucks and employee traffic at the Smithfield Foods packing plants. Reduction in traffic volumes minimizes the potential for traffic accidents as employees walk from the parking lots to the packing plants.

RECOMMENDATION: Introduce traffic calming devices or other transportation design measures to reduce the potential for accidents involving employees traveling to and from the manufacturing facilities from the parking lots across Route 10 Business. Such devices may include increased signalization, striped crosswalks, improved signage and a pedestrian tunnel or overpass that would allow employees to avoid walking in the direct path of oncoming vehicular traffic.

10. Unpaved Roads

ISSUE #1: Presently, a number of roads in the Town remain unpaved and have poor surface and drainage characteristics. The most notable of these include the following:

Table X-2
PRIORITY PAVEMENT IMPROVEMENT RECOMMENDATIONS

<u>Street</u>	<u>Location</u>
• Greenbrier Lane	<i>Rising Star neighborhood in Battery Park North Planning Area</i>
• Quarterfield Drive	<i>Between South Church Street & John Rolfe Drive</i>
• Cedar Street	<i>Parallel to Bypass in Jericho Planning Area (south of Jericho Rd.)</i>
• Pole Road	<i>Between Sub-Areas 2 and 3 in the West Main Planning Area</i>

Utilization of these roads is currently limited due to the nature of their construction. Standing water resulting from improper drainage often creates difficulties during storm events. The Town's level of urgency with respect to paving and otherwise improving these roadways varies for each of the five according to the anticipated trip demand for each and its projected future role in the Town's transportation network. The five unpaved streets above are listed in order (from highest to lowest) of their relative priority level for improvement as established by Town Staff. Greenbrier Lane will be improved in FY 1999 as part of the Town's planned improvements for the Rising Star neighborhood. Quarterfield Drive should be improved during the near planning term if VDOT provides funding for the Quarterfield Drive/South Church Street intersection improvement discussed earlier. Cedar Street and Pole Road will be improved in coordination with the future development of Sub-Area 4 of the Jericho Planning Area and Sub-Areas 2 and 3 in the West Main Planning Area, respectively. It is anticipated that these areas will be developed within the next ten-to-fifteen years.

RECOMMENDATION: The Town should undertake paving program to upgrade these roadways to contemporary standards thereby improving the character of the neighborhoods they presently serve and to provide the necessary infrastructure capacity to properly serve planned future development. It should be emphasized that the paving must be accomplished within the context of provision of adequate right of way, improved drainage (ditching), upgraded base materials and utility adjustments.

RECOMMENDATION: In conjunction with the future improvement of Cedar Street, the existing paved road section of the street should be reconfigured so that on-street parking is limited to one side of street only. Currently, on-street parking is allowed on both sides of the street, and given the limited right-of-way along the improved section, vehicular congestion is quite common during peak demand periods. The final design solution should incorporate the existing sidewalk and ensure that the street edge is clearly defined.

HRPDC 2015 REGIONAL TRANSPORTATION PLAN

In May 1995, the Hampton Roads Planning District Commission (HRPDC) completed a regional transportation plan for the Hampton Roads area which addresses a twenty-five year planning period (1990-2015). The Hampton Roads 2015 Regional Transportation Plan includes both long-range and short-range strategies and actions, with projected fiscal requirements that will lead to the development of an integrated intermodal transportation system aimed at facilitating the efficient movement of both people and goods.

Although the 2015 Plan focuses primarily on regional transportation issues which impact the more intensely developed urban areas to the east and south, it does address several long-range considerations and recommendations for transportation systems in and around the Smithfield area. For the most part, these recommendations are consistent with those described in the preceding section. From a more regional perspective, the 2015 Regional Transportation Plan discusses several regional transportation programs that will ultimately have a direct impact on Smithfield's transportation network. Included among these programs are the HRPDC's Transportation Demand Management study and the Regional Bikeway Plan. It is recommended that the Town lobby with the HRPDC to allocate more resources to studying transportation issues in and around the Smithfield area in the upcoming planning period. Given the recent growth trends impacting the Town and Isle of Wight County and the new development planned for the area, especially the Cypress Creek and Eagle Harbor communities, it is hoped that the HRPDC will realize that transportation issues relating to the increased travel demands associated with this unparalleled growth will be of primary importance to the future of not only Smithfield and surrounding Isle of Wight County, but also to the regional transportation network.

IMPLEMENTATION/FINANCING

In pursuing an effective implementation program, the range of transportation improvements proposed herein will require a carefully devised combination of public and private funding strategies. Transportation facility implementation must be viewed in the context of Town comprehensive planning objectives and growth management policies. Fundamental to the success of these strategies will be the ability of the Town to provide strong leadership in (a) land use decision making level (i.e. rezonings and plan approvals) and (b) coordination of sub-regional transportation issues with Isle of Wight County.

In taking the next steps toward coordination with the VDOT planning process and establishing CIP priorities during the ensuing years, the Town Council must further prioritize projects on the basis of: (a) the anticipated or actual phasing of new growth in the community, (b) existing impacts on public health and safety, (c) public support, (d) the protection and/or enhancement of the community's economic base, (e) physical and engineering feasibility of project development, (f) the availability and distribution of financing, and (g) special circumstances related to joint public/private development opportunities.

OFFICIAL MAP FOR TRANSPORTATION

The General Assembly has established that the Official Map for a community is to be used "as an important planning implementation tool in the Commonwealth." State enabling legislation has strengthened the status of the Official Map in this regard. This map is used to officially recognize, designate, and establish the geometric requirements for improvements for public lands and facilities within a locality. Further, the Official Map is to be founded on the elements of Comprehensive Plan relating to those facilities which have been recommended. If Smithfield's transportation goals and objectives for the future are to be realized, an Official Map is one of the initial steps to be taken by Town Council in that pursuit.

Pursuant to the adoption of the Comprehensive Plan, the Town should initiate the preparation of an Official Map for the purpose of establishing alignments for required rights-of-way related to the implementation of road improvements recommended therein. As the implementation of the transportation plan proceeds, the Town should endeavor by use of the Official Map to (a) publicly acquire, (b) publicly reserve, (c) accept by gift and/or (d) negotiate the private reservation/construction of road improvements designated thereon.

The map should recognize both (1) additional rights-of-way to improve existing street deficiencies and (2) future rights-of-way for new Town streets required to service the Future Land Use Plan. Alignments for future roads where development pressures may be imminent should be given high priority by the Town with respect to official mapping.

TRAFFIC IMPACT ASSESMENTS FOR NEW DEVELOPMENT

In the growth management process, transportation issues normally reach their point of "maximum controversy" at the time when new development proposals are submitted to the Town. More often than not, land development proposals are presented for appropriately zoned parcels for which only subdivision and/or site plan approval is required. Usually, at this stage, substantive discussion of transportation issues and concerns is diluted given the ministerial nature of plat and plan approvals. In the past, the Town has a relatively narrow platform on which to engage the developer on subjects such as (1) existing street deficiencies, (2) Comprehensive Plan traffic and transportation recommendations, (3) coordinated on-site circulation systems, (4) coordinated off-site improvements, and (5) fiscal and financial obligations to implement necessary and essential improvements in conjunction with development activities.

The planning and development of future new residential streets within Smithfield will be primarily a responsibility of private landowners and developers as new subdivisions are undertaken. It shall be incumbent upon the Town to assure that new residential developments are designed to ensure and promote:

- (a) *properly-scaled internal hierarchies of street layouts,*
- (b) *pavement widths and right-of-way improvements compatible with density levels,*

- (c) adequate access to collectors and minor arterials,*
- (d) contemporary residential street geometry and intersectional design criteria,*
- (e) sufficient on-street and off-street parking to serve residents and guests,*
- (f) high quality street signage, signals and lighting provisions,*
- (g) sidewalks and accommodation of pedestrian needs,*
- (h) special vehicular movements, such as fire equipment and snow plowing, and*
- (i) incorporate street plantings and other buffer-oriented landscaping.*

One step in the right direction has been the integration of transportation impact evaluations into the Town's growth management process. This process, as envisioned during the early stages in the development of the 1999 Comprehensive Plan, was adopted with the recent (1998) update of the Town's Zoning Ordinance. The Town established a process by which the developer will be held more accountable to the public sector in the analysis, planning, and construction of road improvements which are necessitated by one's development proposal. Under the new system, traffic impact standards will be applied to all new land development programs. All proposed development must submit a Traffic Impact Assessment (TIA), prepared by a registered professional engineer. In addition, TIA studies may also be needed where constraints are present on the existing roadway system or where the proposed development would require modifications to the off-site roadways in the area.

PEDESTRIAN FACILITIES AND SIDEWALKS

The relatively compact scale of the downtown area has allowed for the incorporation of pedestrian walkways for recreational and necessary movement between home, workplace, schools and shopping facilities. Unfortunately, the existing Town sidewalk network fails to extend in any systematic way beyond the downtown area. The vast majority of the existing residential communities in the Town lack sidewalks, walking paths or bikepaths. As a result, few physical pedestrian connections are made between residential subdivisions. Residents who wish to walk for exercise purposes or to do their small goods shopping or to visit friends and neighbors must do so in the street or in residential yards. This presents safety hazards for pedestrians and drivers alike. When effectively employed, pedestrian facilities provide increased community benefits in the form of physical linkages between neighborhoods, reduced air pollution, reduced traffic congestion and automobile fuel savings.

During the development of this plan, the Town has established the development of a formal sidewalk system as a fundamental goal. As a component of the Comprehensive Planning process, the existing sidewalk system was analyzed and a recommended sidewalk improvement plan was developed to complement and enhance the existing system in order to provide a more comprehensive pedestrian system that provides direct linkages between residential neighborhoods and connects residential subdivisions to neighborhood commercial areas, public spaces and parks. The plan also incorporates improvements designed to connect historic resources within the Historic Area as a means of promoting tourism within the Town.

The Town's existing sidewalk system is focused around streets in the Historic Area and along its major commercial corridors. It has been developed in a piecemeal fashion over the years, and as a result, is loosely connected and does not function as a truly integrated transportation system. Several of the sidewalks in the Town are not clearly defined from the street edge and thus, can only loosely be defined as sidewalks (the walkways along South Church Street are the best example of this phenomenon). A summary of existing sidewalk locations is presented below (these locations are summarized graphically in green on the "Sidewalk and Bikeways Plan" map available in the Town Hall):

Table X-3
EXISTING SIDEWALK LOCATIONS

- West Main Street (sidewalks located on both sides of the street between the South Church Street intersection and the Smithfield Middle School)
- Cedar Street (south side of the street between South Church Street and Drummonds Lane)
- South Church Street (both sides of the street between W. Main Street and the Cypress Creek bridge)
- Commerce Street (west side of the street only)
- Cary Street (east side of the street between West Main Street and the Goose Hill subdivision)
- Riverview subdivision (Washington, Riverview and James streets)
- James Street
- Institute Street (one side of the street nearest the Smithfield Foods headquarters)
- Grace Street/Thomas Street
- Route 10 Bypass (on the overpass connecting the Route 10 Bypass to Jericho Road and the Cypress Creek subdivision)

The sidewalk plan includes specific recommendations for new sidewalk construction. The plan is summarized graphically along with recommended bikeway improvements in a map entitled “Sidewalk and Bikeway Plan.” A large scale copy of the map is available in the Town Hall, and a smaller version of the map is included in this final version of the Comprehensive Plan. A summary of recommended improvements is provided in the table presented on the following page. Special emphasis has been placed upon the three major transportation project recommendations pertaining to sidewalks discussed earlier in this plan (ie. planned improvements to Battery Park Road, Moonefield Drive and Smithfield Boulevard). Each sidewalk improvement recommendation is listed according to its priority level as assigned by the Town Planning Commission and Staff based upon perceived need, funding availability and physical feasibility (ie. sufficient right-of-way availability). Unless otherwise noted, all sidewalk improvements should be constructed on one side of the road only, and each recommended sidewalk improvement should incorporate a 5’ right-of-way for the paved sidewalk section. Brick pavers should be used within the Historic District where appropriate and financially feasible.

Table X-4
SIDEWALK IMPROVEMENT PLAN
Summary of Recommended Improvements

These locations are summarized graphically in red on the “Sidewalk and Bikeways Plan” map available in the Town Hall.

- South Church Street--extend sidewalk on both sides of the street between Battery Park Road and the Cypress Creek bridge as part of planned improvements described earlier in this plan
- Moonefield/John Rolfe Drive--construct sidewalk from Battery Park Road to extend to the Pagan Road intersection.
- Smithfield Boulevard--construct sidewalk along Smithfield Boulevard from South Church Street to the street terminus beyond Barclay Crescent
- Battery Park Road/Route 704--construct sidewalk along the full length of Battery Park Road from South Church Street to the Nike Park Road intersection and continuing on northward to connect to the Gatling Pointe subdivision in the County
- Cedar Street--extend existing sidewalk on Cedar Street in conjunction with planned road improvement plan and continue along Jericho Road to create a pedestrian “loop” designed to connect Windsor Castle and the nearby amphitheater with the Downtown area; explore a possible pedestrian connection from Jericho Road across the Route 10 Bypass overpass to connect to the Cypress Creek development
- Lumar Road--construct sidewalk along Lumar Road to connect South Church Street to the planned sidewalk improvement along John Rolfe Drive (this improvement should include a short sidewalk improvement along the Jordan Drive segment connecting South Church Street and Lumar Road)
- Waterford Oaks area--incorporate sidewalks into the existing internal street system in the Waterford Oaks subdivision to allow residents safe walking opportunities between residences and to nearby shopping and eating establishments

The underlying economic reality of the proposed recommendations will be implicit in the future planning for pedestrian and bicycle infrastructural improvements in Smithfield. Each recommendation is provided with the assumption that it will be the Town’s responsibility coupled with necessary financial input from the affected property owners to retrofit existing developed neighborhoods and Town-maintained streets with sidewalks and/or bikeways, but it should be the developer’s responsibility to finance and/or construct the recommended improvements within undeveloped areas planned for future development. In addition,

planned major street improvement projects should include sidewalk facilities whenever possible. Town sidewalk construction should be included in the annual operating budget and should be given more consideration and a higher priority in the development of the Town's Capital Improvements Program.

BIKEWAYS

The Future Land Use Plan recognizes the need for an integrated bikeway system in and around the Smithfield area. At present, neither the Town nor Isle of Wight County have any formal bikeways located within its boundaries. However, the HRPDC has developed a formal Regional Bikeway Plan suggesting ideal connections between localities within the region. Unfortunately, the plan places little emphasis on bike network possibilities in the Town or in Isle of Wight County, focusing instead on the more urbanized areas to the south and east of Smithfield. The only recommended HRPDC improvement directly impacting the Town is the incorporation of lanes along the Route 10 Business corridor. Thus, it is incumbent on the Town to establish and implement its own bikeway network outside the context of "regional" support. In doing so, it is important to consider the unique classifications of bikeways and their impact on the built environment. The HRPDC Regional Bikeway study defines the three major classifications and types of bikeways which are commonly employed in planning suburban and urban bike networks.

Multi-Use Trails are constructed physically separate from the highway. They may either be developed in a separate right-of-way, apart from roads and streets, or as a path within the road right-of-way, but physically separated and protected from motor vehicle traffic. These facilities are usually eight to twelve feet wide and are designed to accommodate two-way bicycle traffic.

Shoulder Bike Lanes are constructed adjacent to traffic lanes and are generally delineated by pavement markings. These lanes are typically three to five feet wide paved shoulders. Shoulder bike lanes can also be separate lanes between the travel lanes and on-street parking areas in urban areas. To accommodate two-way traffic, these bike lanes must be constructed on each side of the road. Shoulder bike lanes provide wider right hand travel lanes and are considerably less costly than the multi-use trails. Shoulder Bike Lanes can often be constructed in conjunction with highway widening projects. When preparing the detailed implementation plans for the bikeway network, conflicts may arise in the establishment of shoulder bike lanes, particularly in developed areas. These include right-of-way width (particularly for streets having curbs and gutters), on-street parking intersection design and open space and landscaped areas adjacent to the street.

Shared Roadways are travel lanes that are shared by all users of the roadway. Occasionally, the travel lanes are widened to 14 or 15 feet rather than the standard 12 feet, but often signage is the only accommodation. There are no bikeway pavement markings associated with these facilities, and the roadway is simply signed as a bicycle route. If implementation studies indicate that shoulder bike lanes cannot be constructed in certain areas, shared roadways would be the most appropriate designation, and it is possible that in certain instances restriping could allow wider curbside travel lanes providing more room for motorists and cyclists. Typically, shared roadways are only designed on roadways with very light traffic and in developed areas where other modes are not feasible. They are easy to develop and are much less costly than multi-use trails or shoulder bike lanes and can significantly improve bicycle mobility.

The Town should attempt to locate new bikepaths along strategically selected minor arterials, local collector roads and minor residential streets in order to establish a sound bicycle network. This network should correspond with the Town's sidewalk plan to enable the Town to provide better physical linkages between existing neighborhoods and schools, recreation areas, community centers and commercial areas. The Town should also lobby the HRPDC to initiate a detailed study that focuses upon Smithfield and Isle of Wight County and the most efficient integration of facilities, both existing and planned, into the adopted regional bikeway plan. As a part of this lobbying effort, the Town should also encourage Isle of Wight County to develop and adopt a formal bikeway plan in its Comprehensive Plan that is integrated with the Town's new plan presented in this chapter. Specific bikeway improvement recommendations were developed by the Town in such a way that paths with logical integration potential into Isle of Wight are clearly defined.

Ideally, bikeways should mirror sidewalk placement where feasible, with sidewalks on one side of the street and a separate multi-purpose trail on the other or side-by-side placement depending upon right-of-way accessibility and the proliferation of curb cuts along the street. Development in the three newly annexed areas in the Town should consider the implementation of bikepaths and lanes as part of its open space and street design strategies. Specific recommendations for bikepath improvements are summarized in the table on the following page. Except where otherwise noted, each improvement should include a five foot right-of-way for a shoulder bike lane on one side of the road only.

Table X-5
BICYCLE PATH IMPROVEMENT PLAN
Summary of Recommended Improvements

These locations are summarized graphically in purple on the “Sidewalk and Bikeways Plan” map available in the Town Hall.

- Route 10 Bypass--shoulder lanes should be added to both sides of the limited access highway enabling easy and safe access on all on- and off-ramps; given the existing width of the bridge over Cypress Creek, this improvement must necessarily include a measure to cantilever across the bridge to allow the additional space needed for bike lanes; it is recommended that the Town apply for ISTEA funding to complete the project
- Cedar Street/Jericho Road--bikeway improvements should mirror the recommended sidewalk improvements for the Cedar Street/Jericho Road loop; access should also be reserved to allow an extension of the bikepath from Jericho Road across the Route 10 Bypass overpass connecting to the Cypress Creek subdivision and beyond to the bikeway improvements recommended for Great Spring Road
- Cary Street---add bikeway improvement along Cary Street from West Main Street to the new recreational facility planned for the Town’s old sewage treatment plant
- John Rolfe Drive/Moonefield Drive--add bikeway improvement along John Rolfe and Moonefield from Battery Park Road to Azalea Drive
- Battery Park Road--bikeway improvements should mirror the recommended sidewalk improvements along Battery Park Road and extend to the Gatling Pointe subdivision
- Smithfield Boulevard--bikeway improvements should mirror the recommended sidewalk improvements along Smithfield Boulevard
- South Church Street--construct bikeway lane adjacent to existing sidewalks to link recommended paths on Battery Park Road, Smithfield Boulevard and the Bypass
- Great Spring Road--add bikeway improvement along Great Spring Road to connect to Route 258 and to allow logical extension of a rural path into Isle of Wight County

- Route 258 West--add bikeway improvements along Route 258 West from bypass intersection to Waterworks Road
- Waterworks Road--extend bikeway improvements along Waterworks Road to connect to the Town-owned lake in the County

TYPICAL STREET SECTIONS RECOMMENDED FOR FUTURE ROAD IMPROVEMENTS

Several examples of typical street sections are provided on the following pages in order to provide examples as to the different options available for future road improvements. It is recommended that future road improvement plans incorporate design aspects of one or more of these examples into its final design solution in order to appropriately respond to the needs expressed by the Smithfield community for better pedestrian and bicycle access and increased efficiency in the Town's transportation network.

VILLAGE STREET SECTION

The Village street section illustrated here assumes a pedestrian oriented environment characterized by low design speeds, on-street parking, sidewalks, crosswalks, pedestrian and street lighting and street tree plantings. A thirty (30) foot pavement width is recommended to accommodate two travel lanes, each eleven (11) feet in width and on-street parking along one side of the drive at eight (8) feet in width. On-street parking is vitally important to the village concept, providing access to streets accented by retail uses. As an alternative to on-street parking, bicycle lanes may be designated along each side or one side of the village street. Street trees installed in a planting strip along either side of the road offer shade to both the sidewalk and to parked cars, as well as contribute to a pedestrian scale for the village. Additional streetscaping and landscaping enhance the pedestrian environment by providing opportunities to gather with others, to walk and to shop in pleasant surroundings.

TYPICAL ROADWAY SECTION with Alternate Bicycle Lane

This section depicts typical conditions for a rural stretch of highway with allowances for future turn lanes, travel and bicycle lanes. Such a street section illustrates immediate opportunities for street tree placement, within the right-of-way, and immediately visible from the highway, yet out of the way of future improvements. The proposed 30 foot setback for street trees is less than the 37 feet recommended by VDOT for travel at 55 mph, but falls within the acceptable range for roads traveled at 50 mph or less. When future widening and roadway improvements do occur, it is recommended that a designated bicycle lane be incorporated.

